CLAIMS

1. An optical modulator comprising a substrate consisting of a material having an electro-optic effect, an optical waveguide formed on said substrate, and a modulating electrode for allowing an electric field to work on said optical waveguide, and changing the phase of light passing through said optical waveguide, wherein stray light rejection means are provided on the surface of said substrate.

2. The optical modulator according to claim 1, wherein said stray light rejection means comprises a stray light rejection groove, at least one part of which is formed adjacent to said optical waveguide.

3. The optical modulator according to claim 2, wherein the distance between said stray light rejection groove and said optical waveguide is 10 to 100 μm at closest.

4. The optical modulator according to any of claims 2 and 3, wherein the depth of said stray light rejection groove is almost the same or more than that of said optical waveguide.

5. The optical modulator according to any of claims 2 to 4, wherein said stray light rejection groove is filled with a light absorber material.

6. The optical modulator according to any of claims 1 to 5, wherein said optical waveguide comprises a branching optical waveguide, and at least one part of stray light rejection means is provided adjacent to said branching optical waveguide.

7. The optical modulator according to any of claims 1 to 5, wherein at least one part of said stray light rejection means is provided between the optical waveguide that the electric field of the modulating electrode works on and the side face of the substrate that is close to said optical waveguide.

8. An optical modulator comprising a substrate consisting of a material having an electro-optic effect, an optical waveguide formed on said substrate, and a modulating electrode for allowing an electric field to work on said optical waveguide, and changing the phase of light

passing through said optical waveguide, wherein a low refractive index area with the refractive index lower than that of said substrate is provided at one portion of the adjacent spaces comprising at least the lower portion and the side portion of said optical waveguide in order to prevent a stray light from entering the optical waveguide.

9. The optical modulator according to claim 8, wherein said low refractive index area has thickness longer than the depth of said optical waveguide in the thickness direction of the substrate from the surface of said substrate, and the refractive index between the deepest part of said low refractive index area and the reverse face of said substrate is higher than that of said low refractive index area.

10. The optical modulator according to any of claims 8 and 9, wherein said low refractive index area is formed by diffusion of a low refractive index material with the refractive index lower than that of said substrate over said substrate.

11. The optical modulator according to any of claims 8 to 10, wherein said low refractive index area comprises MgO or ZnO as the low refractive index material.

12. An optical modulator comprising a substrate consisting of a material having an electro-optic effect, an optical waveguide formed on said substrate, and a modulating electrode for allowing an electric field to work on said optical waveguide, and changing the phase of light passing through said optical waveguide, wherein a high refractive index area with the refractive index higher than that of said substrate is provided at the reverse face or side face of said substrate.

13. The optical modulator according to any of claims 1 to 12, wherein antireflection treatment is given on the reverse face or side face of said substrate.

14. The optical modulator according to any of claims 1 to 13, wherein the frequency of modulation drive is more than 40GHz.

15. The optical modulator according to any of claims 1 to 14, wherein the input power of the light that is inputted into said optical modulator is more than 10mW.